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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,632	10/13/2000	Jean-Pierre Tahon	4907/Oconalign	8441

7590 10/22/2003
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EXAMINER

HON, SOW FUN

ART UNIT	PAPER NUMBER
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1772

11

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS 11

Office Action Summary	Application No.	Applicant(s)	
	09/689,632	TAHON ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,5,7-14 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,5,7-14 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/02/03 has been entered.

Withdrawn Rejections

2. The 112,2nd paragraph rejections in Paper # 8 (mailed 05/02/03) have been withdrawn due to Applicant's amendment and cancellation of claim 13 in Paper # 10 (filed 09/02/03).

Rejections Repeated

3. The 35 U.S.C. 103(a) rejections over Escher et al. in view of Kämpf et al., inclusive of the rejection further in view of Eguchi, have been repeated for the same reasons previously of record in Paper # 8 (mailed 05/02/03).

Advisory

4. Applicant is advised that should claim 8 be found allowable, claim 17 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight

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difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

New Rejections

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. New claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Escher et al. in view of Kämpf et al.

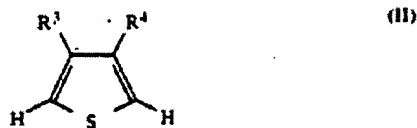
Escher et al. has a liquid crystal display where the alignment layer (orienting) is in direct electrical contact with the associated electrode (electroconductive layer). The electrically conductive polymer which comprises the alignment layer is a polythiophene (column 2, lines 1-70).

Escher et al. teaches that the electrically conductive polymer is coated onto a glass substrate provided with a transparent electrode (column 5, lines 20-50). Since the associated electrodes are discrete elements, the alignment layer will have conducting areas where it is in direct electrical contact with the associated electrode, and will have non-conducting areas in between the electrodes.

Since the electrically conductive polymer has a specific conductance of at least 10^{-5} Siemens (column 3, lines 30-40), the examiner has taken the position that the alignment layer has a surface resistivity of the claimed amount.

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Escher et al. teaches that the polythiophene (column 2, lines 1-55) has the thiophene monomer formula below:

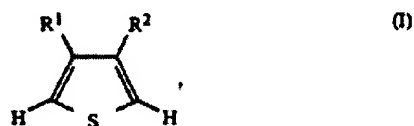


where at least one of the two radicals R^3 and R^4 is an alkoxy group and the other is optionally (C_1-C_6) alkyl or hydrogen, have already been described in DE-A 3,717,668, DE-A 3,628,895 and DE-A 3,736,114. The preparation, the stability and electrical conductivity of the various, positively doped polymers were also investigated therein.

wherein R^3 and R^4 are in the same positions of claimed $-O-R^1$ and $-O-R^2$ on the thiophene ring.

The hydrogens are where the repeat units are linked upon polymerization of the thiophene monomer. Escher et al. discloses that R^3 and R^4 have already been described in DE-A 3,717,668.

US 5,286,414 (Kämpf et al.) is the US equivalent of DE-A 3,717,668. Kämpf et al. teaches that the polythiophene has the thiophene monomer formula below:



in which

R^1 denotes a C_1-C_{12} alkoxy group or $-O(CH_2C-H_2O)_nCH_3$ where $n=1$ to 4 and

R^2 denotes a hydrogen atom, a C_1-C_{12} alkyl group, a C_1-C_{12} -alkoxy group, or $-O(CH_2CH_2O)_nCH_3$ where $n=1$ to 4, or

R^1 together with R^2 represents $-O(CH_2)_m-CH_2-$ or $-O(CH_2)_m-O-$, in which m is 1 to 12.

wherein R^1 and R^2 occupy the same positions of claimed $-O-R^1$ and $-O-R^2$ on the thiophene ring.

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Kämpf et al. teaches that R^1 and R^2 together represent $-\text{O}-(\text{CH}_2)_m-\text{O}-$ where m is 1 to 12 (column 2, lines 30-55), which encompasses the claimed limitation that R^1 and R^2 together represent a C1-C4 alkylene group where m is 1 to 4.

Since Escher et al. discloses that Kämpf et al. describes alternate electrically conductive polymers which are also investigated, with their disclosure right after the disclosure of the preferred electrically conductive polymer in the orienting layers (column 2, lines 1-55), it would have been obvious to one of ordinary skill in the art to have used the polythiophene described by Kämpf et al. as an alternate to the polythiophene specified in the invention of Escher et al. in order to obtain a liquid crystal display with the desired conductive properties.

Response to Arguments

7. Applicant's arguments filed 09/02/03 have been fully considered but they are not persuasive.
8. Applicant argues that Escher does not teach that poly (3,4-dioxyalkylene thiophene) exhibits liquid crystal orienting properties since Escher merely claims that poly (3,4-dioxyalkylene thiophene) exhibits liquid crystal orienting properties but does not provide enabling experimental support.

Applicant is respectfully apprised that the teaching by Escher that the poly (3,4-dioxyalkylene thiophene) has good orienting properties is sufficient in terms of suggesting to one of ordinary skill in the art to use it as an orienting layer. Since the polymer layer is mechanically rubbed to form an orienting layer (gently stroked twice in the same direction) ('538, column 5,

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lines 20-55) it is the examiner's position that the disclosure is enabling. Applicant is respectfully requested to demonstrate how and why the experimental support is not enabling.

9. Applicant argues that since no reference is made to DE-A 3,717,668, DE-A 3,628,895, DE-A 3,736,114 or to any corresponding applications thereof in the disclosure of formula (I) of Escher et al., the options for R^1 and R^2 in the formula (II) of Escher et al. cannot have a greater scope than those for formula (I) and hence any implied allusion to a previous description of R^1 and R^2 in DE-A 3,717,668, DE-A 3,628,895, DE-A 3,736,114 or to any corresponding applications thereof must be limited to the options for R^1 and R^2 in formula (I).

Applicant is respectfully apprised that the mere disclosure of the electrically conducting polymers of formula (II) right after formula (I) is indicative that formula (II) may be used as an alternate in place of preferred formula (I). Escher et al. does not teach against the use of the electrically conducting polymers of formula (II).

10. Applicant argues that Kämpf does not disclose the preparation of poly(3,4-dioxyalkylenethiophene)s and that while Kämpf purports to disclose solvent-soluble oligomers of poly(3,4-dioxyalkylenethiophene)s, later research show such to be insoluble and not swellable in solvent and solvent mixtures thus demonstrating that Kämpf is not enabled by experimental data.

Applicant is respectfully apprised that the teaching by Kämpf of the use of poly(3,4-dioxyalkylenethiophene)s as an electrically conducting (electroconductive) coating ('414, column 2, lines 25-70), and the inclusion of its parent DE-A 3,717,668 in Escher et al. (primary reference) as teaching alternate electrically conducting embodiments of poly(3,4-dioxyalkylenethiophene), provide sufficient motivation for one of ordinary skill in the art to have

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used the alternate embodiments of poly(3,4-dioxyalkylenethiophene) of taught by Kämpf as the electrically conductive poly(3,4-dioxyalkylenethiophene) in the orienting layer of Escher et al.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (703)308-3265. The examiner can normally be reached Monday to Friday from 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (703)308-4251. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

SH
Sow-Fun Hon
10/10/03


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1/12

10/18/03